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MP0062

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	First Named Inventor	Sehat Sutardja	
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Fee Transmittal Form	☐ Drawing(s)	After Allowance Communication to TC			
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Amendment / Reply	Petition	Appeal Communication to TC (Appeal Notice, Brief, Reply Brief)			
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Signature	Marcolles				
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MP0062 PATENT

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appeal No.	
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oplication No.:

09/659,693

Filing Date:

September 11, 2000

Appellant:

SUTARDJA

Conf. No.:

Group Art Unit:

2644

Examiner:

Andrew C. Flanders

Title:

METHOD AND APPARATUS FOR RECORDING AND

REPRODUCING DIGITAL DATA

## RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

Mail Stop Appeal Brief-Patents P.O. Box 1450 Alexandria, VA 22313-1450 July 2, 2007

Sir:

The following includes a replacement Summary of the Claimed Subject Matter section in response to the Notification of Non-Compliant Appeal Brief mailed May 30, 2007.

## SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention relates generally to an apparatus for recording and reproducing digital data. More particularly, the present invention relates to a media player/recorder having a miniature hard disk drive for storing digital data. (Paragraph [0003] of the present invention).

In conventional media players (e.g. an MP3 player) the amount of music data stored in the MP3 player is limited by the amount of flash memory installed in the MP3 player. Increasing the flash memory increases the overall cost of the MP3 player and increases energy required to operate the MP3 player. Consequently, operating time is decreased and/or weight is increased due to additional batteries.

Decoding data (such as a decoding algorithm) is stored either in the flash memory or a read only memory (ROM). When the decoding algorithm is stored in the ROM, typically the ROM must be changed to update, revise or otherwise change the decoding algorithm. For example, it may be necessary for a user to send the entire product (i.e. the MP3 player) to the manufacturer to have the ROM replaced. Additionally, storing multiple decoding algorithms requires a larger ROM. Similarly, when the decoding algorithms are stored in the flash memory, storing multiple decoding algorithms requires a larger flash memory. Increasing the size of either the ROM or the flash memory increases the cost and energy consumption of the device. (Paragraphs [0006] and [0007] of the present invention).

As illustrated in Figures 2 and 3 of the present application, exemplary embodiments of the present invention are directed to a media player/recorder. As recited in independent claim 1, the media player/recorder includes a storage device (e.g., disk drive 230) to store compressed media data. [see present application, page 5, lines 25-29] The media player/recorder includes a programmable processor (e.g., processor 300) that is programmed to both retrieve and decompress the media data. [see present application, page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33] The media player/recorder includes a memory (e.g., memory 202) to store the data retrieved by the processor. [see present application, page 6, lines 3-16] The media player/recorder also includes an output circuit (e.g., output circuit 216) to output the

decompressed media data from the processor. [see present application, page 9, line 33 – page 10, line 2] By combining the functionality of *both* the retrieval and the decompression of the media data into a single device (the programmable processor), an apparatus including the media/player recorder can be fabricated at lower cost and have lower energy consumption. [see present application, page 8, lines 1-2]

According to an exemplary embodiment, the programmable processor can comprise a digital signal processor (e.g., DSP/MPU 343) to *both* control the storage device and to decompress the media. By using only one DSP rather than two (or more) to both control an associated storage device and to decompress media data, the cost of fabrication and the amount of energy consumption of any device incorporating such can be reduced. [see present application, page 8, lines 1-2]

According to a further exemplary embodiment, the storage device can store a process for decompressing compressed media data for a selected compression format. [see present application, page 7, 17-22] Storing the decompression algorithms on the storage device advantageously minimizes the size of ROM required for the device and its energy consumption. [see present application, page 7, lines 19-20] Additionally, such a feature allows future decompression (and compression) formats to be easily implemented for the media player/recorder. [see present application, page 7, lines 21-22] Furthermore, the digital signal processor of the media player/recorder can determine the compression format and select and retrieve an appropriate process for decompressing the media data from the storage device. [see present application, page 6, lines 22-25]

According to an additional exemplary embodiment, the digital signal processor can comprise an encoder to compress received media data. [see present application, page 9, lines 16-20] Thus, the digital signal processor can be operable to compress media data, and decompress media data, and control the storage device, and retrieve media data stored in the storage device. As indicated previously, using a single DSP to perform all of these functions saves on fabrication costs and energy consumption.

More particularly, conventional media players include separate processors for performing decoding and hard disk controlling. Processing is generally done sequentially, with little overlap. For example, a first processor can control the reading of a block of data from a hard disk. Once read, the first processor and hard disk are shut down. A second processor then can perform the decoding of the data. Thus, one processor will be working while the other is not, as they are run at alternate times. In addition, the use of multiple processors requires greater energy, a larger die space (for the multiple chips on a die), and, therefore, increased manufacturing costs. Furthermore, each processor may require the payment of licensing fees to the third-party manufacturer for use of that processor, so that the use of more processors would require the payment of more licensing fees.

In contrast, exemplary embodiments of the present invention use a single processor or digital signal processor to perform multiple functions. Using a single processor or digital signal processor results in a reduction in energy consumption and utilization of space (since there is a fewer number of chips used), a corresponding decrease in manufacturing costs, and a potential reduction in licensing fees.

As recited in independent claim 11, a media player/recorder includes a programmable processor (e.g., processor 300) that includes a digital signal processor (e.g., DSP/MPU 343) that uses the *same* circuit to *both* control a storage device (e.g., disk drive 230) and to decompress the media data stored in a memory (e.g., memory 202). [see present application, page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33] As noted previously, the use of a single DSP to both control a storage device and to decompress media data saves on the cost of fabrication and the amount of energy consumption of any device incorporating such. [see present application, page 8, lines 1-2]

Independent claim 20 is directed to an integrated circuit to control a media player/recorder. The integrated circuit includes a storage controller (e.g., hard disk controller 342), a read channel (e.g., read channel 341) and a digital signal processor (e.g., DSP/MPU 343). The digital signal processor controls the storage device, and transfers compressed media data read by the read channel to the memory, and decompresses the media data stored in the memory, and converts the decompressed media data to an analog signal. [see present application, page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33] Again, by using a single DSP, rather than two or more, the cost of fabrication and the amount of energy consumption can be reduced.

Independent claim 22 is directed to a method of playing and recording media data from a media player/recorder. According to the method, compressed media data stored on a storage device is retrieved using a circuit (e.g., processor 300). The compress media data is decompressed using the *same* circuit (e.g., processor 300). [see present application, page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33]

Independent claim 171 is directed to a method of playing and recording media data from a media player/recorder. According to the method, media data is stored. The media data comprises a plurality of selections. First portions of at least one of the plurality of selections of the media data are transferred to a memory (e.g., memory 202). The first portions of the at least one of the plurality of sections of the media data are output from the memory (e.g., memory 202). According to an exemplary embodiment, when a user selects a particular one of the plurality of selections, a remaining portion of the particular one of the plurality of selections are output. [see present application, page 11, line 29 – page 12, line 13]

Independent claim 28 of the present application recites the features of "storage means for storing compressed media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a storage device, such as, for example, disk drive 230 illustrated in Figures 2-4 and described at page 5, lines 25-29.

Independent claim 28 recites the feature of "programmable processing means programmed for retrieving the media data stored in said storage means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a programmable processor, such as, for example, processor 300 illustrated in Figure 2-4 and described at page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33.

Independent claim 28 recites the feature of "memory means for storing the media data retrieved by said processing means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown

as, for example, a memory, such as, for example, memory 202 illustrated in Figures 2-4 and described at page 6, lines 3-16.

Independent claim 28 recites the feature of "output means for outputting the decompressed media data from said processing means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an output circuit, such as, for example, output circuit 216 illustrated in Figures 2-43 and described at page 9, line 33 to page 10, line 2.

Dependent claim 30 recites the feature of "interface means responsive to said processing means for communicating with an external device." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an interface circuit, such as, for example, interface circuit 206 illustrated in Figure 2-4 and described at page 5, lines 21-25.

Dependent claim 31 recites that the processing means comprises "digital signal processing means for controlling said storage means and for decompressing the media data stored in said memory means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a digital signal processor (DSP), such as, for example, DSP/MPU 343 illustrated in Figures 3 and 5 and described at page 7, lines 5-14.

Dependent claim 32 recites that the processing means comprises a single integrated circuit comprising the feature of "storage controller means responsive to said digital signal processing means for controlling said storage means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a storage controller, such as, for example, hard disk controller (HDC) 342 illustrated in Figures 3 and 5 and described at page 7, lines 5-9.

Dependent claim 32 recites that the processing means comprises a single integrated circuit comprising the feature of "read channel means for reading data from said storage means . . . ." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a read channel, such as, for example, read channel 341 illustrated in Figures 3 and 5 and described at page 7, lines 5-9.

Dependent claim 33 recites that the digital signal processing means comprises "a decoding means for decompressing the media data stored in said memory means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a decoder, such as, for example, codec 348 illustrated in Figures 3 and 5 and described at page 7, lines 17-20 and page 9, lines 16-20.

Dependent claim 37 recites the feature of "input means for receiving media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an input circuit, such as, for example, input 214 illustrated in Figures 2-4 and described at page 5, lines 30-33.

Independent claim 38 of the present application recites the features of "storage means for storing compressed media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a storage device, such as, for example, disk drive 230 illustrated in Figures 2-4 and described at page 5, lines 25-29.

Independent claim 38 recites the feature of "processing means for retrieving the media data stored in said storage means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a processor, such as, for example, processor 300 illustrated in Figure 2-4 and described at page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33.

Independent claim 38 recites the feature of "output means for outputting the decompressed media data from said processing means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an output circuit, such as, for example, output circuit 216 illustrated in Figures 2-43 and described at page 9, line 33 to page 10, line 2.

Independent claim 38 recites that the processing means comprises "digital signal processing means and uses the same circuit for controlling said storage means and for decompressing the media data stored in said memory means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a digital signal processor (DSP), such as, for

example, DSP/MPU 343 illustrated in Figures 3 and 5 and described at page 7, lines 5-14.

Dependent claim 40 recites the feature of "interface means responsive to said processing means for communicating with an external device." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an interface circuit, such as, for example, interface circuit 206 illustrated in Figure 2-4 and described at page 5, lines 21-25.

Dependent claim 41 recites that the processing means comprises a single integrated circuit comprising the feature of "storage controller means responsive to said digital signal processing means for controlling said storage device." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a storage controller, such as, for example, hard disk controller (HDC) 342 illustrated in Figures 3 and 5 and described at page 7, lines 5-9.

Dependent claim 41 recites that the processing means comprises a single integrated circuit comprising the feature of "read channel means for reading data from said storage means . . . ." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a read channel, such as, for example, read channel 341 illustrated in Figures 3 and 5 and described at page 7, lines 5-9.

Dependent claim 42 recites that the digital signal processing means comprises "decoding means for decompressing the media data stored in said memory means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a decoder, such as, for example, codec 348 illustrated in Figures 3 and 5 and described at page 7, lines 17-20 and page 9, lines 16-20.

Dependent claim 46 recites the feature of "input means for receiving media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an input circuit, such as, for example, input 214 illustrated in Figures 2-4 and described at page 5, lines 30-33.

Independent claim 47 of the present application recites an integrated circuit for controlling a media player/recorder including the feature of "digital signal processing means for controlling the storage means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a processor, such as, for example, DSP/MPU 343 illustrated in Figures 3 and 5 and described at page 7, lines 5-14.

Independent claim 47 recites the feature of "storage controller means responsive to said digital signal processing means." For purposes of illustration, the structure described in the specification as corresponding to the claimed feature can be shown as, for example, a storage controller, such as, for example, hard disk controller (HDC) 342 illustrated in Figures 3 and 5 and described at page 7, lines 5-9.

Independent claim 47 recites the feature of "read channel means . . . for reading the compressed media data from the storage means . . . ." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a read channel, such as, for example, read channel 341 illustrated in Figures 3 and 5 and described at page 7, lines 5-9

Independent claim 47 recites that the digital signal processing means comprises "a decoding means for decompressing the media data stored in said memory means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a decoder, such as, for example, codec 348 illustrated in Figures 3 and 5 and described at page 7, lines 17-20 and page 9, lines 16-20.

Independent claim 95 of the present application recites an integrated circuit for controlling a media player/recorder including the feature of "digital signal processing means for controlling the storage means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a processor, such as, for example, DSP/MPU 343 illustrated in Figures 3 and 5 and described at page 7, lines 5-14.

Independent claim 95 recites the feature of "storage controller means responsive to said digital signal processing means." For purposes of illustration, the structure described in the specification as corresponding to the claimed feature can be shown as,

for example, a storage controller, such as, for example, hard disk controller (HDC) 342 illustrated in Figures 3 and 5 and described at page 7, lines 5-9.

Independent claim 95 recites the feature of "read channel means . . . for reading the compressed media data from the storage means . . . ." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a read channel, such as, for example, read channel 341 illustrated in Figures 3 and 5 and described at page 7, lines 5-9

Independent claim 95 recites that the digital signal processing means comprises "a decoding means for decompressing the media data stored in said memory means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a decoder, such as, for example, codec 348 illustrated in Figures 3 and 5 and described at page 7, lines 17-20 and page 9, lines 16-20.

Independent claim 169 of the present application recites the feature of "a storage device to store media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a storage device, such as, for example, disk drive 230 illustrated in Figures 2-4 and described at page 5, lines 25-29.

Independent claim 169 recites the feature of "a memory." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a memory, such as, for example, memory 202 illustrated in Figures 2-4 and described at page 6, lines 3-16.

Independent claim 169 recites the feature of "a processor to transfer first portions of at least one of the plurality of selections of the media data from said storage device to said memory." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a processor, such as, for example, processor 300 illustrated in Figure 2-4 and described at page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33.

Independent claim 169 recites the feature of "an output device, wherein said output device outputs the first portions of the at least one of the plurality of sections of the media data from the memory." For purposes of illustration, the structure described

in the specification as corresponding to the claimed function can be shown as, for example, an output circuit, such as, for example, output circuit 216 illustrated in Figures 2-43 and described at page 9, line 33 to page 10, line 2.

Independent claim 170 of the present application recites the features of "storage means for storing media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a storage device, such as, for example, disk drive 230 illustrated in Figures 2-4 and described at page 5, lines 25-29.

Independent claim 170 recites the feature of "memory means for storing data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a memory, such as, for example, memory 202 illustrated in Figures 2-4 and described at page 6, lines 3-16.

Independent claim 170 recites the feature of "processing means for transferring first portions of at least one of the plurality of selections of the media data from said storage means to said memory means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a processor, such as, for example, processor 300 illustrated in Figure 2-4 and described at page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33.

Independent claim 170 recites the feature of "output means for outputting the first portions of the at least one of the plurality of sections of the media data from said memory means." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an output circuit, such as, for example, output circuit 216 illustrated in Figures 2-43 and described at page 9, line 33 to page 10, line 2.

Independent claim 171 of the present application recites a method of playing and recording media data and includes the feature of "storing media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a storage device, such as, for example, disk drive 230 illustrated in Figures 2-4 and described at page 5, lines 25-29.

Independent claim 171 recites the feature of "transferring first portions of at least one of the plurality of selections of the media data." For purposes of illustration, the

structure described in the specification as corresponding to the claimed function can be shown as, for example, a processor, such as, for example, processor 300 illustrated in Figure 2-4 and described at page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33 (the processor transfers the first portions to the memory 202; the memory 202 is illustrated in Figures 2-4 and described at page 6, lines 3-16).

Independent claim 171 recites the feature of "outputting the first portions of the at least one of the plurality of sections of the media data from the memory." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an output circuit, such as, for example, output circuit 216 illustrated in Figures 2-43 and described at page 9, line 33 to page 10, line 2.

Independent claim 172 of the present application recites a computer program for playing and recording media and includes the feature of "storing media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a storage device, such as, for example, disk drive 230 illustrated in Figures 2-4 and described at page 5, lines 25-29.

Independent claim 172 recites the feature of "transferring first portions of at least one of the plurality of selections of the media data." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, a processor, such as, for example, processor 300 illustrated in Figure 2-4 and described at page 7, lines 14-17, page 8, lines 8-32 and page 9, lines 21-33 (the processor transfers the first portions to the memory 202; the memory 202 is illustrated in Figures 2-4 and described at page 6, lines 3-16).

Independent claim 172 recites the feature of "outputting the first portions of the at least one of the plurality of sections of the media data from the memory." For purposes of illustration, the structure described in the specification as corresponding to the claimed function can be shown as, for example, an output circuit, such as, for example, output circuit 216 illustrated in Figures 2-43 and described at page 9, line 33 to page 10, line 2.

## **CONCLUSION**

Should there be any outstanding matters that need to be resolved in the present application the Examiner is respectfully requested to contact Michael D. Wiggins, Reg. No. 34,754, or Damian M. Aquino, Reg. No. 54,964, at the telephone number below.

If necessary, the Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY, & PIERCE, P.L.C.

By:

Michael D. Wissins Reg. No. 34,754

MDW/dma

Please address all correspondence to: Harness, Dickey & Pierce, P.L.C. 5445 Corporate Drive Suite 200 Troy, MI 48098 Customer No. 26703 Tel. No. (248) 641-1600 Fax. No. (248) 641- 0270